

CALIFORNIA ENERGY COMMISSION

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Sacramento, California 95814

Web Site: www.energy.ca.gov



May 3, 2000

Members of the Senate Energy, Utilities and Communications Committee
Members of the Senate Budget and Fiscal Review Committee
Members of the Senate Appropriations Committee
Members of the Assembly Utilities and Commerce Committee
Members of the Assembly Budget Committee
Members of the Assembly Appropriations Committee
California State Capitol Building
Sacramento, California 95814

***Re: California Energy Commission's Quarterly Report
Concerning the Public Interest Energy Research Program***

Dear Members:

In accordance with Public Resources Code Section 25620.5(h), the California Energy Commission hereby transmits its Quarterly Report regarding the Public Interest Energy Research (PIER) Program for the period January 1 through March 31, 2000. The enclosed report provides the required evaluation of the progress and a status of the PIER Program's implementation for this quarter.

To date, the Energy Commission has made substantial progress in meeting the goals of the PIER Program, as demonstrated by the early results of PIER-funded projects that will help advance science and technology to improve the quality of life for California citizens. Should you have questions or comments concerning this report, please feel free to contact Tim Schmelzer, Assistant Director of Governmental Affairs, at 654-4942.

Respectfully submitted,

ROBERT A. LAURIE

Commissioner and Presiding Member
Research, Development and
Demonstration Committee

MICHAEL C. MOORE

Commissioner and Associate Member
Research, Development and
Demonstration Committee

Enclosure

cc: Legislative Analyst's Office

California Energy Commission's Quarterly Report Concerning the Public Interest Energy Research Program (January 1 through March 31, 2000)

In accordance with Public Resources Code (PRC) Section 25620.5(h), this document hereby constitutes the California Energy Commission's Quarterly Report for the Public Interest Energy Research (PIER) Program, covering the period from January 1 through March 31, 2000. This report provides the required evaluation of the progress and a status of the PIER Program's implementation for this past quarter. It also provides input for the Energy Commission's more detailed *Annual Report Concerning the Public Interest Energy Research Program* (hereafter referred to as *Annual PIER Report*) required pursuant to PRC Section 25620.8.

I. STATUS SUMMARY OF THE PIER PROGRAM

As specified in PRC Section 25620, the primary mission of the PIER Program is to improve the quality of life of this State's citizens . . . [by funding] public interest energy research, development and demonstration [RD&D] projects that are not adequately provided for by competitive and regulated energy markets. The funds for this program, totaling approximately \$61.8 million annually, come from the electricity ratepayers of specified investor-owned utilities and are held in the PIER Program Trust Fund Account.

Energy Commission decisions related to the PIER Program are initially reviewed by the Commission's Research, Development and Demonstration (RD&D) Committee. During this past quarter, Vice Chair David Rohy ended his five-year term as an Energy Commissioner and Presiding Member of the RD&D Committee. Commissioner Robert Laurie is now serving as the Presiding Member of the RD&D Committee. Commissioner Michal Moore is now serving as the Associate Member of that Committee.

During the first quarter of the year 2000, the PIER Program accomplished the following things:

- The Energy Commission managed contracts for 83 PIER projects and two specific RD&D collaborative funding efforts, which had received approximately \$70 million in PIER funding awards from the Energy Commission during 1998 and 1999.
- The Buildings End-Use Efficiency focus area developed contracts for three programs that received \$17.32 million in PIER funding awards.
- The Energy Commission augmented its collaborative funding contract with the Electric Power Research Institute (EPRI) with additional funds directed towards new research targets in the Renewable Energy Technologies (Renewables) program area.

- The Energy Commission approved a funding award in the Strategic Energy Research program area.
- The Renewables program team continued scoring three final proposals requesting PIER funds as a result of a competitive negotiation solicitation.

During the first quarter of this year 2000, the Energy Commission also filed its second *Annual PIER Report* (Publication 500-00-001, March 2000) with the Legislature as required by law. In addition, the Energy Commission began a collaborative effort to redesign the PIER Web Site. Finally, the PIER Independent Review Panel presented its preliminary report on the PIER Program to the Governor and Legislature (March 2000) as required by Public Resources Code 25620.9(b).

Further details concerning the Energy Commission's PIER Program activities for the first quarter of 2000 are provided below.

II. TRANSITION FUNDING STATUS REPORT

In 1998, the Energy Commission awarded approximately \$17 million to 39 separate transition projects covering the six PIER program areas. Of the 39 transition projects, 37 have been completed, and one was cancelled as of the end of the fourth quarter of 1999. The one remaining transition project will be completed within the next year.

During the first quarter of 2000, written reports on the completed transition projects were being finalized. For further details on the completed transition projects, please refer to Appendix A of the *1999 Annual PIER Report*, which was published in March 2000.

III. PIER PROGRAM AREA FUNDING STATUS REPORT

A. Buildings End-Use Energy Efficiency Efforts

During the first quarter of 2000, the Energy Commission made significant progress in developing contracts for three programs in the Buildings End Use Efficiency program area that received \$17.32 million in PIER funding awards from a competitive solicitation. The following three programs received funding:

- 1) Integrated Energy Systems
- 2) High Performance Commercial Building Systems
- 3) Energy Efficient and Affordable Small Commercial and Residential Buildings for a Growing California

Some of the proposed outcomes of these programs include the following:

- A target of reduced electricity use by 22 percent in the California commercial sector by the year 2015;
- Environmental, comfort, and health benefits to commercial, institutional, and residential building occupants;
- New job opportunities in the energy efficiency industry.

A detailed description of these programs is provided in the *1999 Annual PIER Report*.

B. Renewable Energy Technology Efforts

On November 10, 1999, the Renewable Energy Technologies program area released a \$1.3 million competitive negotiation solicitation for small-scale modular biomass power projects. The purpose of these projects is to develop biomass-fueled distributed generation systems that will provide strategic value to California's electricity system, while simultaneously addressing environmental problems that are caused by open-field burning of agricultural residues, wildfires from forest overgrowth and urban woodwastes landfills.

In January of 2000, initial proposals were received, and the final proposals were received in mid-February of 2000. Three final proposals requesting approximately \$2.6 million are in the final scoring process. The proposed funding awards will be presented at an Energy Commission Business Meeting in May 2000.

C. Strategic Energy Research Efforts

During the first quarter of 2000, the Energy Commission approved a \$320,086 award to Onsite Sycom Energy Corporation. The purpose of the contract is to conduct research on interconnection requirements for distributed energy resources (DER), as well as research that will facilitate permit streamlining for DER. Previously, most generators were large plants connected to substations, but smaller generators are now available that can address local congestion issues and provide increased reliability and lower costs. However, the current interconnection requirements are complex and expensive. The proposed outcome of this contract is to lower the cost of interconnection for small and medium sized generators.

Also, the Strategic Energy Research program area initiated several tailored research projects with EPRI. These projects include the following:

- Complete a risk evaluation of the chemicals used in the photovoltaic (PV) industry in California. This work effort has two elements. First, the work is to identify the chemicals used in PV cells and their potential for release into the environment, particularly ground water. Second, the work is to identify the existing and emerging PV cell technologies that have relatively lower toxic risk compared to other cell types.

- Conduct research to identify critical market pricing and market structure issues that influence new market entry and have a direct impact on system reliability.
- Research cyber threats to the electricity grid and market. The phone system and Internet provide gateways to the electricity system. With the sharing of information increasing at a rapid rate, the interconnected infrastructure is at risk from a variety of security breaches. The ultimate goal is to develop and provide protective measures for the electricity grid and related infrastructures.

IV. PIER COLLABORATIVE RESEARCH FUNDING STATUS REPORT

Electric Power Research Institute Collaborative Funding

In 1998, the Energy Commission approved a one-year, \$1.5 million partnership with EPRI, focused on funding collaborative research in seven key areas for California. In 1999, the Energy Commission augmented the funding with \$11.7 million to include twenty additional research areas. As a result, this partnership has been extended through 2000.

This collaborative funding allows the Energy Commission to participate in guiding national RD&D activities in specified areas and will help to ensure that California continues to receive the benefits of these nationally funded RD&D efforts. In addition, the State of California is able to leverage up to thirteen dollars for every one dollar of PIER Program funding. Through this collaborative funding effort, the PIER Program supports California-specific electricity-related research in 27 target areas.

During the first quarter of 2000, the Energy Commission augmented its EPRI collaborative funding with \$737,467 which will be used to fund new research targets in the Renewables program area. Detailed information on these new targets will be provided in the next PIER Quarterly Report. In addition, the Strategic Energy Research program area initiated tailored research projects with EPRI (see Strategic Energy Research above).

V. PIER ENERGY INNOVATIONS SMALL GRANT PROGRAM

This PIER-funded program, administered by the California State University Institute, provides a simplified funding-award process for "proof of concept" research projects that are proposed by small businesses, non-profits, academic institutions and individuals. The Energy Innovations Small Grant Program provides PIER funding support for RD&D innovations that might otherwise not be successfully pursued. The maximum amount of any individual grant award is \$75,000.

The Energy Commission has released five solicitations to date. For the first two solicitations, the Energy Commission approved 18 projects totaling \$1.35 million. These projects started in October 1999. For the third solicitation, 11 projects totaling \$824,530 were approved at the Business Meeting on January 26, 2000.

A fourth round of solicitations was released on December 17, 1999, and resulted in 48 proposals. Project recommendations from this round will be considered at the May 31 Business Meeting. Round five of the grant program was released on March 20, 2000. The proposals are due on April 28, 2000.

VI. OTHER PIER PROGRAM ACTIVITIES

A. Information Transfer/Reporting Activities

During the first quarter of 2000, the Energy Commission completed and submitted the *1999 PIER Annual Report* to the Legislature. This comprehensive report provides detailed information on completed and ongoing PIER-funded projects, competitive solicitations, and collaborative funding efforts, as well as recommendations for program improvement.

In addition, the Energy Commission began a collaborative effort with Science Applications International Corporation (SAIC) to redesign the PIER Program Web Site. The goal of this revision is to create a Web Site that is more informative and user-friendly, so that it will be easier for the staff and the general public to use this program as a primary resource for relevant information. This effort should be completed during the second quarter of 2000.

Finally, the Energy Commission's Process Energy Team is working with EPRI, Southern California Edison, the American Water Works Foundation, the Metropolitan Water District and the Orange County Water District to present a workshop on "Promising Electrotechnologies to Enhance Water and Wastewater Treatment. The workshop will take place on May 3, 2000, and will provide an overview of the technologies being developed through the PIER Transition and First General Solicitation contracts. The goal of this workshop is to provide a forum for information exchange between the Energy Commission and the decision-makers in other water and wastewater districts about the progress on the development of new treatment technologies.

During the first quarter of 2000, the Energy Commission, EPRI and Pacific Gas & Electric Company also prepared to sponsor three additional workshops to present energy efficient technology solutions to water district operating staff. A PIER-funded denitrification project in Modesto will be featured at the workshops. The regional water quality boards and the California Department of Health Services will participate with the Energy Commission in discussions regarding the implications of new technologies in meeting water quality standards and drinking water standards.

All four workshops will provide the industry with in-depth information on PIER-funded projects and associated products that will become available on the market.

B. Independent Panel for PIER Evaluation

PRC Section 25620.9(a) required the Energy Commission to designate an independent panel of experts by January 1, 1999, to conduct a comprehensive evaluation of the PIER Program. PRC Section 25620.9(b) required the Independent Review Panel to submit a preliminary report of its findings to the Legislature by March 31, 2000. The Panel met this requirement and submitted its preliminary report during the first quarter of 2000.

The Panel found that the PIER Program has realized some important accomplishments over the last two years. These include establishing the Policy Advisory Panel, a transition solicitation that preserved key elements of the utilities public interest RD&D activities, two competitive solicitations, and initiating a framework for planning and managing the program into the future.

The Panel also found that some areas of the PIER Program had problems that hindered effective program execution. These include:

- The lack of a program director responsible for program planning for 20 of the 24 months since the inception of the program;
- A complex and time-consuming contract process;
- Limited coordination between the Energy Commission elements supporting the program;
- Lack of clarity between responsibilities, authority, and assets for the program area managers;
- Unclear connections among other federal and private-sector energy RD&D activities.

The Panel's evaluation provides important guidance on how to improve the PIER Program. The Energy Commission is addressing these issues by establishing the position of a PIER Program Manager, filling that position, and developing a process that more closely links future energy-related challenges to program objectives and public interest criteria.

In addition, the RD&D Committee Chair (Commissioner Robert Laurie) met with the Independent Review Panel Chair (Dr. John S. Foster) to discuss a strategy that calls for the PIER Program and the Panel to work closely together in the coming year to address each of the issues raised by the Panel.

VII. CONCLUSION

The Energy Commission remains fully committed to administering the PIER Program in an efficient and effective manner that ensures public input and accountability. The PIER section of the Energy Commission's Web Site is a means of communicating with stakeholders and the public. The Web Site can be accessed at:

www.energy.ca.gov/research/PIER

The Energy Commission continues to successfully develop and implement the PIER Program, in accordance with the directives contained in AB 1890 and SB 90. Should you have questions or comments, please feel free to contact Tim Schmelzer, Assistant Director of Governmental Affairs, at 654-4942.